

ABSTRACT OF THE DISCLOSURE

A moving coil motor has an axisymmetric magnetic field applied to the drive coils on the movable member of the motor. The movable member is suspended by springs. The moving coil motor may be configured in a MEMS format, with the movable member and its suspension springs fabricated from a mono-crystalline substance to improve structural integrity. MEMS based moving coil motors may be configured in an array. Sensors are provided to detect the relative spatial positions of the movable member. The movable member may include several tiers. In one application, the moving coil motor may be configured to support and drive a mirror surface on the movable member to form a galvanometer, optical switch, or other optical component. Singular moving coil motors may be configured in an optical cavity to facilitate the tuning of specific wavelengths while a number of moving coil motors may be configured to form an array of optical switches to facilitate switching in a multi-channel optical network.